

interval of the first and second fringe as three to two, and to the like dark interval between the second and third as two to one. For the breadths of the fringes seemed to be in the progression of the numbers $1, \frac{1}{2}, \frac{1}{3}$ and their intervals to be in the same progression vvith them; that is, the fringes and their intervals together to be in the continual progression of the numbers $1, \frac{1}{2}, \frac{1}{3}, \frac{1}{4}, \frac{1}{5}$, or thereabouts. And these proportions held the same very nearly at all distances from the Hair; the dark Intervals of the fringes being as broad in proportion to the fringes at their first appearance as afterwards at great distances from the Hair, though not so dark and distinct.

O B S. V.

The Sun shining into my darkened Chamber through a Hole a quarter of an Inch broad; I placed at the distance of two or three Feet from the Hole a Sheet of Past-board, vvhich vvvas black'd all over on both sides, and in the middle of it had a Hole about three quarters of an Inch square for the Light to pass through. And behind the Hole I fastened to the Past-board vvith Pitch the blade of a sharp Knife, to intercept some part of the Light vvhich passed through the Hole. The planes of the Past-board and blade of the Knife vvvere parallel to one another, and perpendicular to the rays. And vvhen they vvvere so placed that none of the Sun's Light fell on the Past-board, but all of it passed through the Hole to the Knife, and there part of it fell upon the blade of the Knife, and part of it passed by its edge: I let this part of the Light vvhich passed by, fall on a
white

white Paper two or three Feet beyond the Knife, and there saw two streams of faint Light shoot out both ways from the beam of Light into the shadow like the tails of Comets. But because the Sun's direct Light by its brightness upon the Paper obscured these faint streams, so that I could scarce see them, I made a little Hole in the midst of the Paper for that Light to pass through and fall on a black cloth behind it; and then I saw the two streams plainly. They were like one another, and pretty nearly equal in length and breadth, and quantity of Light. Their Light at that end next the Sun's direct Light was pretty strong for the space of about a quarter of an Inch, or half an Inch, and in all its progress from that direct Light decreased gradually till it became insensible. The whole length of either of these streams measured upon the Paper at the distance of three Feet from the Knife was about six or eight Inches; so that it subtended an Angle at the edge of the Knife of about 10 or 12, or at most 14 degrees. Yet sometimes I thought I saw it shoot three or four degrees further, but with a Light so very faint that I could scarce perceive it, and suspected it might (in some measure at least) arise from some other cause than the two streams did. For placing my Eye in that Light beyond the end of that stream which was behind the Knife, and looking towards the Knife, I could see a line of Light upon its edge, and that not only when my Eye was in the line of the streams, but also when it was without that line either towards the point of the Knife, or towards the handle. This line of Light appeared contiguous to the edge of the Knife, and was narrower than the Light of the innermost fringe, and
R r narrowest